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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,761	01/21/2005	Tomi Jarvinen	HORMOS-019	2621

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EXAMINER	
GOON, SCARLETT Y	

ART UNIT	PAPER NUMBER
1623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/521,761	JARVINEN ET AL.	
	Examiner	Art Unit	
	SCARLETT GOON	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to Applicants' Amendment and Remarks filed on 25 September 2008 in which claims 1-12 were cancelled and new claims 13-21 are added.

Applicants indicate that new claim 13 is supported on page 8, line 3 to page 9, line 24; new claims 14-16 and 18-21 correspond to claims 2-4 and 9-12, respectively; new claim 17 is taken from claim 8. It is considered that no new matter has been added as a consequence of the amendments.

Claims 13-21 are currently pending and are examined on the merits herein.

Priority

This application is a National Stage entry of PCT/FI03/00511 filed on 24 June 2003 and claims priority to Finland foreign application 20021545 filed on 29 August 2002. A certified copy of the foreign priority document in English has been received.

Rejections Withdrawn

In view of the cancellation of claims 1-12, all rejections made with respect to claims 1-12 in the previous Office Action are withdrawn.

These rejections have been **withdrawn**.

The following are new ground(s) or modified rejections necessitated by Applicants' amendment, filed on 25 September 2008. The limitations in the new claims

have been changed from the preliminary amendment filed on 21 January 2005 and the breadth and scope of those claims have been changed. Therefore, rejections from the previous Office Action, dated 26 June 2008, have been modified and are listed below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13, 17 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by PG Pub No. US2005/0169947 A1 by Korte *et al.* (of record).

Korte *et al.* disclose topical formulations comprising lignans or esters thereof as active ingredients, either for cosmetic or pharmaceutical use (p. 3, lines 9-11; p. 7, lines 24-25). The active agent, which is a lignan or a lignan ester, is selected from the group consisting of hydroxymatairesinol, lariciresinol, secoisolariciresinol, isolariciresinol, oxomatairesinol, α-conidendrin, liovil, picearesinol, syringaresinol or nortrachelogenin, or a lignan ester of formula (I) or (II) (page 3, lines 18-30). The topical formulation can be a liquid formulation, a semisolid formulation or a foam, shampoo, spray, patch, stick, batch additive or a sponge. The formulations can also be made as a liposomal formulation (p. 10, lines 26-27). The lignans or lignan esters can be entrapped in

complexing agents, such as cyclodextrins, or polymeric vesicles with a shell consisting of a suitable polymeric material (p. 11, lines 9-13). Korte *et al.* further disclose that according to a preferred embodiment of their invention, the lignan or lignan ester is in the form of an inclusion complex with cyclodextrin (p. 11, lines 24-25).

The inclusion complex of a lignan or lignan ester, such as hydroxymatairesinol, with cyclodextrin, disclosed by Korte *et al.*, anticipates claims 13, 17 and 21.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Response to Arguments

Applicant's arguments filed 25 September 2008 with respect to the rejection of claims 1, 5-8 and 12 made under 35 USC § 102(e) as being anticipated by Korte *et al.*, have been fully considered but they are not persuasive.

Applicants argue that Korte *et al.* fails to specifically disclose the claimed complex, that being an inclusion complex of hydroxymatairesinol, its isomer or its ester, with a cyclodextrin. Applicants further indicate that none of the formulations in Examples 1-8 illustrate an inclusion complex of hydroxymatairesinol and a cyclodextrin. These arguments are not persuasive because the rejection was made against the

claims as filed in the preliminary amendment dated 21 January 2005, which did not indicate hydroxymatairesinol as the only lignan limitation in the rejected claims. Furthermore, although the Examples 1-8 do not illustrate an inclusion complex of hydroxymatairesinol and a cyclodextrin, Korte *et al.* specifically indicate that a preferred embodiment of their invention is that the lignan or lignan ester is in the form of an inclusion complex with cyclodextrin (p. 11, lines 24-25). As such, Korte *et al.* disclose every element of the claimed invention.

The rejection is still deemed proper and therefore adhered to.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Section [0001]

Claims 14-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over PG Pub No. US2005/0169947 A1 by Korte *et al.* (of record) as applied to claims 13, 17 and 21 above, further in view of U.S. Patent 6,559,168 B2 to Marfat *et al.* (herein referred to as the '168 patent, of record) and U.S. Patent No. 6,395,279 B1 to Empie *et al.* (herein referred to as the '279 patent, of record).

The teachings of Korte *et al.* were as described above in the claim rejections under 35 USC § 102. Korte *et al.* do not explicitly teach the different kinds of cyclodextrins that may be used in forming an inclusion complex with the lignan or lignan esters, nor does Korte *et al.* teach a nutritional, dietary or food product comprising the composition.

The Marfat '168 patent teaches thiazolyl-acid amide derivatives useful as inhibitors of PDE4 isoenzymes. The PDE4 inhibitors taught in the Marfat '168 patent fall into different classes based on their chemical structures, of which one class is lignans (column 17, lines 34-42). In order to improve the stability of the pharmaceutical compositions, sequestering agents such as cyclodextrins can be used (column 261, lines 16-23). The cyclodextrins are a family of natural cyclic oligosaccharides capable of forming inclusion complexes with a variety of materials, and are of varying ring sizes, those having 6-, 7- and 8-glucose residues in a ring being commonly referred to as α-cyclodextrins, β-cyclodextrins, and γ-cyclodextrins, respectively (column 261, lines 16-23).

The Empie '279 patent teaches a composition including saponogenins and saponins, lignans, phenolic acids, catechins and isoflavones and methods of using these compositions as nutritional supplements, dietary supplements or food additives (column 1, lines 13-19; abstract; claim 1). The composition can be delivered in an easy to consume dosage such as a pill, tablet, capsule, liquid or ingredient in a food including health bars (column 3, lines 45-48). The composition is intended to provide health and

well-being benefits (column 4, lines 12-13) and is useful as a therapeutic treatment for cancer (column 4, lines 64-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Korte *et al.*, concerning inclusion complexes of a lignan or lignan ester, such as hydroxymatairesinol, with cyclodextrin, with the teachings of the Marfat '168 patent, regarding the use of cyclodextrins as sequestering agents, with the teachings of the Empie '279 patent, regarding a composition including saponogenins and saponins, lignans, phenolic acids, catechins and isoflavones and methods of using these compositions as nutritional supplements, dietary supplements or food additives. One would have been motivated to combine the teachings in order to receive the expected benefit, as suggested in the Marfat '168 patent, that cyclodextrins improve the solubility and stability of compositions. Additionally, as suggested in the Empie '279 patent, lignans have health and well-being benefits, and are useful in treating cancer. With regards to the specific cyclodextrin for forming an inclusion complex, it would have been *prima facie* obvious for one of ordinary skill in the art to choose a cyclodextrin, from among the different types of available cyclodextrins taught in the Marfat '168 patent, which is most suitable for the desired purposes, i.e. the specific lignan or lignan ester used may dictate the type of cyclodextrin used due to size constraints.

Thus, the claimed invention as a whole is *prima facie* obvious over the combined teachings of the prior art.

Section [0002]

Claims 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,451,849 B1 to Ahotupa *et al.* (herein referred to as the '849 patent, PTO-892, Ref. A) in view of U.S. Patent No. 6,559,168 B2 to Marfat *et al.* (herein referred to as the '168 patent, of record).

The Ahotupa '849 patent teaches methods for prevention of cancers and hormone dependent diseases based on administering an effective amount of hydroxymatairesinol or a geometric isomer or a stereoisomer thereof to said person (column 3, line 66 – column 4, line 4; column 1, lines 14-23). Hydroxymatairesinol is the most abundant plant lignan found in the heartwood of spruce (column 1, lines 53-60). The hydroxymatairesinol can be in the form of a pharmaceutical preparation or a food product (column 4, lines 13-30). The food product can be a functional food, a nutritional supplement, a nutrient, a pharmafood, a nutraceutical, a health food, a designer food or any food product (column 5, lines 17-20).

It is noted that the Ahotupa '849 patent does not explicitly indicate that the pharmaceutical preparation comprising hydroxymatairesinol also includes an acceptable carrier. However, as the Ahotupa '849 patent discloses that hydroxymatairesinol is administered at 3.0 mg/kg to animals in a test for antitumor activity, it is inherent that the pharmaceutical preparation includes a carrier.

It is further noted that the Ahotupa '849 patent does not explicitly teach a dietary supplement composition comprising hydroxymatairesinol and a carrier. However, as the Ahotupa '849 patent does teach that hydroxymatairesinol can be used as a

nutritional supplement, it is the Office's position that the nutritional supplement can also function as a dietary supplement.

The Ahotupa '849 patent does not teach an inclusion complex of hydroxymatairesinol.

The teachings of the Marfat '168 patent were as disclosed above in section [0001] of the claim rejections under 35 USC § 103.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of the Ahotupa '849 patent, concerning a composition comprising hydroxymatairesinol for use in the prevention of cancer and hormone dependent diseases, with the teachings of the Marfat '168 patent, regarding the use of cyclodextrins as sequestering agents to improve the stability of PDE4 inhibitors, such as the lignans. One would have been motivated to combine the teachings in order to receive the expected benefit, as suggested in the Marfat '168 patent, that cyclodextrins improve the stability of compositions. With regards to the specific cyclodextrin for forming an inclusion complex, it would have been *prima facie* obvious for one of ordinary skill in the art to choose a cyclodextrin, from among the different types of available cyclodextrins taught in the Marfat '168 patent, which is most suitable for the desired purposes, i.e. the specific lignan or lignan ester used may dictate the type of cyclodextrin used due to size constraints.

Thus, the claimed invention as a whole is *prima facie* obvious over the combined teachings of the prior art.

Response to Arguments

Applicant's arguments filed 25 September 2008 with respect to the rejection of claims 1-5, 7 and 9-12 made under 35 USC § 103(a) as being unpatentable over Shinmen *et al.*, Marfat *et al.* and Empie *et al.*, have been fully considered but they are not persuasive.

Applicants argue that the cited combination of references fails to raise a *prima facie* case of obviousness against the claimed composition because the references, taken together, do not disclose or suggest an inclusion complex of hydroxymatairesinol and a cyclodextrin. This argument is not persuasive because the references were applied to the claims in the preliminary amendment dated 21 January 2005, which did not indicate hydroxymatairesinol as the only lignan limitation. Shinmen *et al.* disclosed syringearesinol, which reads on the claim limitations as filed on 21 January 2005. Thus, taken together with Marfat *et al.* and Empie *et al.*, the combined references sufficiently presented a case of *prima facie* obviousness over the claimed invention as filed on 21 January 2005. New grounds of rejection for the currently amended claims, necessitated by Applicant's amendments, are as indicated above.

The rejection is still deemed proper and therefore adhered to.

Applicant's arguments filed 25 September 2008 with respect to the rejection of claims 1-4, 6, 7 and 9-12 made under 35 USC § 103(a) as being unpatentable over Steiner *et al.*, Marfat *et al.* and Empie *et al.*, have been fully considered but they are not persuasive.

Applicants argue that the cited combination of references fails to raise a *prima facie* case of obviousness against the claimed composition because the references, taken together, do not disclose or suggest an inclusion complex of hydroxymatairesinol and a cyclodextrin. This argument is not persuasive because the references were applied to the claims in the preliminary amendment dated 21 January 2005, which did not indicate hydroxymatairesinol as the only lignan limitation. Steiner *et al.* disclosed enterodiol, which reads on the claim limitations as filed on 21 January 2005. Thus, taken together with Marfat *et al.* and Empie *et al.*, the combined references sufficiently presented a case of *prima facie* obviousness over the claimed invention as filed on 21 January 2005. New grounds of rejection for the currently amended claims, necessitated by Applicant's amendments, are as indicated above.

The rejection is still deemed proper and therefore adhered to.

Applicant's arguments filed 25 September 2008 with respect to the rejection of claims 1-8 made under 35 USC § 103(a) as being unpatentable over Korte *et al.*, Marfat *et al.* and Empie *et al.*, have been fully considered but they are not persuasive.

Applicants argue that the cited combination of references do not disclose or suggest the claimed composition, that being an inclusion complex of hydroxymatairesinol and a cyclodextrin. Additionally, Applicants argue that none of the Korte *et al.* formulation comprises an inclusion complex of hydroxymatairesinol and a cyclodextrin. These arguments are not persuasive because the rejection was made against the claims as filed in the preliminary amendment dated 21 January 2005, which

did not indicate hydroxymatairesinol as the only lignan limitation in the rejected claims. Furthermore, although Examples 1-8 do not illustrate an inclusion complex of hydroxymatairesinol and a cyclodextrin, Korte *et al.* specifically indicate that a preferred embodiment of their invention is that the lignan or lignan ester is in the form of an inclusion complex with cyclodextrin (p. 11, lines 24-25). As such, Korte *et al.* disclose an inclusion complex of hydroxymatairesinol and a cyclodextrin, and taken in combination with the teachings of Marfat *et al.* and Empie *et al.*, would sufficiently present a case of *prima facie* obviousness over the claimed invention as filed on 21 January 2005. New grounds of rejection for the currently amended claims, necessitated by Applicant's amendments, are as indicated above.

The rejection is still deemed proper and therefore adhered to.

Conclusion

In view of the rejections to the pending claims set forth above, no claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCARLETT GOON whose telephone number is 571-270-5241. The examiner can normally be reached on Mon - Thu 7:00 am - 4 pm and every other Fri 7:00 am - 12 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Supervisory Patent Examiner, Art Unit 1623

/SCARLETT GOON/
Examiner
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